Arts 3

AN

ACCOUNT

OF THE

INVENTION AND USE

OF

FIRE-PLATES,

FOR THE SECURITY OF BUILDINGS
AND SHIPS AGAINST FIRE.

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AN ACCOUNT OF THE INVENTION AND USE OF FIRE-PLATES.

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THE great number of Fires which continually happen in this kingdom, and particularly the great devaſtations which have lately been made by fire in the ſeveral parts of the metropolis, have produced a general alarm in the minds of men upon the ſubject; which naturally leads to the conſideration of the extent of theſe dangers, and of the means of ſecurity which may be provided againſt them. The conſtruction of houſes in England, and the combuſtible materials of which they are compoſed, (being all built with fir timber) render them peculiarly liable to fire. The inhabitants of ſuch houſes, if they neglect to apply the proper and effectual means to counteract the combuſtible conſtruction of them, muſt be ſubject to the ordinary dangers, which happen either by caſualty or malice.

It is extremely irrational to ſuffer ourſelves to lie open, through indolence, to ſuch dangers as we have the certain means of guarding againſt. This is the caſe with regard to the caſualties of fire, againſt which the proper application of fire-plates is a certain prevention; and nothing but prevention can, in this caſe, give ſecurity.

But the caſualty of fire is very far from being the whole of the danger. Recent and fatal experience has pointed out to us more unmeaſurable and inevitable dangers of fire, from malice and premeditation, than all thoſe which common caſualty and misfortune can hold out to our fears. A purſe of gold, or a pocket-book with bank bills, or a diamond necklace, or any moveable of value, may prove as fatal incendiaries in any houſe as the moſt combuſtible materials. The felon who premeditates a robbery, is by the ſame impulſe driven, for the purpoſe of concealing the firſt crime, to perpetrate the moſt horrid of all crimes, by ſeizing the unguarded and helpleſs hour of reſt and darkneſs, to overwhelm an unſuſpecting and devoted family in fire and flames. If then the goods of fortune are deſerving of preſervation; and if life be ſtill more precious than theſe, we have every inducement which can influence the mind of man, to make uſe of the certain and rational means of ſecuring both from deſtruction by fire.

The invention of preſerving buildings from fire by the uſe of fire-plates, is now of ſome years ſtanding. The principle has been thoroughly examined and verified, by many hundreds of the moſt ſevere trials and public experiments; and the practice and mode of application is univerſally known. Nevertheleſs, a ſhort and ſummary account may be neceſſary to elucidate and to explain the preſent ſtate of this invention, and to promote the facility of its future uſe.

The propoſed method of ſecuring houſes againſt fire by the application of the fire-plates, is by laying them under each floor. The efficacy of theſe fire-plates depends partly upon their preventing the immediate acceſs of the fire itſelf to the timbers of the houſe, and partly upon their preventing that exceſſive *draught* of air, without which no houſe can be ſet on fire. The fire-plates do not in the leaſt degree prevent ſuch ordinary acceſs of air to the timbers of any houſe as they now receive, according to the preſent mode of building. The joints and foldings are ſo numerous, that it is impoſſible to lay them ſo cloſe as a common boarded floor; but the eſſential difference conſiſts in this: that although there is a perſpiration of air at every doubling and joint of the plates, yet theſe joints will never yield or widen by the application of fire, to give a free current, and additional fuel to the beginning flame. The principle, therefore, is by no means the excluſion of air, for that point remains exactly neither more nor leſs than in the ordinary mode of building; but in the prevention of a *draught* of air, aſcending vertically; viz. from below upwards. The fire-plates are incombuſtible in their nature, and are applied horizontally under each floor; by which means they prevent the aſcending *draught* of air through the floors: and this is the principle of their operation and effect.

It is well known by conſtant experience, that fire will not burn under a common boarded floor to any effect, until the crevices begin to open. The plaiſter ceiling, which is below the joiſts, if it be made of good materials, and whilſt it is new, is likewiſe a great preventive againſt fire. But all plaiſter-work, when old, becomes porous, and pervious to air: The main timbers, therefore, of an houſe lie in a very dangerous poſition; viz. between a flooring of deal above, which is very liable to open at the joints, and a dry and porous ceiling underneath, both of which contribute to let in juſt ſuch a quantity of air as a lurking fire may ſubſiſt upon, without being extinguiſhed. When this lurking fire begins to widen the crevices of the floor, acquiring freſh fuel as well as air, and when the plaiſter of the ceiling below begins to drop, leaving the laths bare, like the moſt combuſtible faggoting, to ſpread the fire univerſally, and when a clear current of air and fire is opened through the frame-work of the timbers, joiſts, laths, and flooring boards,—then it is that the houſe is, properly ſpeaking, on fire. But if we have it in our power, as by the fire-plates, to limit the poſſible progreſs of any commencing fire, ſo that it cannot open acceſs to any *draught* of air beyond very ſmall apertures, nor by any means make a communication or free current between two ſtories; no fire under ſuch circumſtances can poſſibly gain any deſtructive aſcendant. We are ſo accuſtomed to the frightful idea of an houſe on fire, that it requires ſome courage of the underſtanding, to believe that an houſe may be ſo provided, as that fire ſhall not be able to make any progreſs beyond a limited and very ſmall degree. But the public trial of ſome hundreds of experiments has moſt fully evinced this truth, upon the principle of preventing fire in the beginning, at which moment it is as eaſily and certainly to be kept down, as it becomes tremendous if it once gets the aſcendant.

The experiments which have been tried under parliamentary authority, have been moſt public and deciſive, in confirmation of the efficacy of the fire-plates, to reſiſt every poſſible degree of fire. It is needleſs to remind the public, that they have been tried in the preſence of their Majeſties; of the Corporation of the City of London; of the foreign miniſters; and in the preſence of many thouſands of other perſons. The City of London voted a ſum of money to erect a pillar to perpetuate the memory of their adoption, and conviction of the efficacy of the invention.

An houſe was built upon Wimbledon Common for the purpoſe of trying theſe experiments in the public world, and in the neighbourhood of the city of London. The plan, upon which theſe experiments were conducted, was to illuſtrate theſe two points, viz. the power of reſiſtance to every poſſible degree of actual fire, and the power of prevention againſt the lurking beginnings of fire. The firſt caſe of reſiſtance to every poſſible degree of fire is calculated for ſome dangerous trades, which are carried on in great cities; ſuch as diſtillers ſhops, or turpentine-warehouſes; or, for certain public purpoſes of ſecuring magazines of public ſtores, not only againſt hazards of fire by accident or treacherous malice, but even againſt the military fire of an enemy in the time of war. Such points as theſe may be accompliſhed by applying the fire-plates above and below the timbers with dry ſand or rubbbiſh between: By theſe means the timbers become abſolutely incapable of taking fire. In experiments thus tried with the double application, the room has been filled from the floor to the ceiling with faggots, and pitch and tar. Such experiments as theſe have been tried repeatedly in the ſame apartment, which, therefore, fully juſtify the aſſertion, that the double uſe of the fire-plates will reſiſt the extremeſt power of fire. Such experiments as theſe are very aſtoniſhing, and ſo far lead to practical uſe, as in the few caſes above ſpecified, of ſecurity to great warehouſes of dangerous combuſtibles, or to magazines of public ſtores.

But the experiments of leſs ſhow are more applicable to the purpoſes of common life. To illuſtrate this latter claſs of experiments, which are of moſt practical uſe for common dwelling houſes, where the ſingle application of the fire-plates is uſed, ſome hundreds of trials have been made of large charcoal fires laid upon the flooring boards, without ſetting fire to the timbers of the houſe, or ſpreading in the leaſt degree ſideways, beyond thoſe parts upon which the heaps of charcoal were laid, and lighted and left to burn out. Theſe experiments have been repeatedly applied upon the ſame floor, and upon the ſame parts of it, without the fire having penetrated to the timbers of the houſe. Such trials as theſe are infinitely more than ſufficient to ſet any common houſe on fire, where the fire-plates are not uſed. Would any one conſent to have an heap of burning charcoal laid upon the bare floor, day by day, for a month together? Yet this may very ſafely be done, where the fire-plates are applied under the floor only; for while the fire-plates under the floor guard the timbers of the houſe, any ſuch floor upon which a fire is lighted is as free from danger as if it were a floor of ſtone. This is the part of the experiment which is of moſt practical uſe, more eſpecially, as this invention is applicable to all houſes that are already built, by only taking up, and relaying the floors.

It is a common phraſe to ſay, that ſuch or ſuch an houſe took fire by accident, which in other words is only ſaying, that the cauſe is hidden. Theſe hidden cauſes are likewiſe the moſt ſudden, and it doubles the terror, not to know where the danger lurks, nor to have any warning; all looks well and unſuſpiciouſly at bed-time, and the firſt notice is in the midſt of flames. All the perſonal anxiety and vigilance that can be beſtowed, may be deceived or ſurprized, but the preventive effect of the fire-plates is conſtant and univerſal; and if no one can deviſe a method of evading their efficacy, by any trials ſimilar to thoſe which can exiſt in common life, the point is proved. Other experiments have likewiſe been tried, by applying fire to the ceiling, where only the ſingle

ſingle application of the fire-plates has been uſed upon the upper ſurface of the joiſts, that is to ſay under the flooring boards of the apartment over head. The preventive effect of the fire-plates is equally certain in this caſe, by ſtopping the aſcending *draught* of air, without which the timbers of the houſe cannot poſſibly take fire, or continue to burn of themſelves. This claſs of experiments has been fully and adequately tried. For as it was not poſſible, in building a new houſe for experiments, to make an old ceiling of 30 or 40 years of age, and as the trial upon a new ceiling, which requires ſome years to become thoroughly dry and porous, might not have carried full conviction, care was taken for the ſufficient proof of ſuch experiments, that apertures ſhould be previouſly made through the plaiſter ceiling, to admit the fire; and the trials were continued from day to day, to the ſame part of the ceiling and timbers of the houſe, a great number of times after the plaiſter-work was burnt down and deſtroyed. But the timbers could never be ſet fire to, ſo as to burn of themſelves, nor would the fire ever ſpread ſide-ways. As long as the burning faggots were applied to the timbers, they were charred, perhaps to the depth of an inch of their ſubſtance. But the fire-plates over them acted as an unconquerable extinguiſher, preventing them from taking fire and burning of themſelves.

In the courſe of theſe experiments, in which, for the ſake of the trials, adventitious fire has been introduced, ſuch as charcoal, faggots, &c. we are inſenſibly led into the inconſiſtency of ſuppoſing an houſe protected by fire-plates to be capable of being ſet on fire; whereas the operation of the fire-plates is to prevent any ſuch houſe from being ſet on fire. What we have to deal with at firſt, is perhaps no more than ſome ſmall ſpark, which, with the additional fuel from the timbers of the houſe, and a current of air through the floor, might in time become an houſe on fire, but which, without the concurrence of either, muſt die away. It is an eaſier taſk to prevent fire than to extinguiſh it. Let the beginning of fire in any houſe be ever ſo ſecret, the preventive effect of the fire-plates is conſtantly in force, as an obſtinate and unconquerable negative to its progreſs. A ſingle fire-plate under an aperture in a floor, or over a crevice in a ceiling, might have prevented the fire of London. Prevention, when we have hold of a ſound and applying principle, is not leſs certain, but on the contrary, far more ſecure than any ſubſequent remedy. This is the fundamental point to be kept in view with reſpect to the fire-plates.

The preventive operation of the fire-plates being a negative, eludes poſitive demonſtration; but to the eye of reaſon it will amount to demonſtration, that if the fire-plates can reſiſt the power of fire, when faggots and combuſtibles have given aſcendant to its fury, they will be much more capable of reſiſting it in its infant and commencing ſtate. The fire-plates being incombuſtible, and being laid under the floor, will prevent any fire from dropping through chinks or crevices in the boards, to the timbers of the houſe, and lurking there until it forms a great body of heat, and burſts out all at once. In common houſes a floor on fire is an houſe on fire; but in an houſe ſecured by the fire-plates, as the floor will not take fire to make a body of heat, how is the houſe to be ſet on fire?

As to the manner of the application, it has already been explained, that in common dwelling houſes it will be ſufficient to lay the plates underneath the floors. It would be a needleſs additional expence to apply them to the ceilings. They are never applied to ceilings, unleſs in the underground offices of town houſes, ſuch as a kitchen, a ſervant's hall, or a laundry. In ſuch places, they may be uſed inſtead of plaiſter ceilings. The manner of laying the plates is ſimple and eaſy. The ſheets are folded together to a ſufficient length, and then nailed to the joiſts.

As to the expence it is very trifling, eſpecially in comparifon with the object which is the preſervation of lives from fire. It is not very eaſy to aſcertain any rate per cent. upon the expence of buildings, becauſe the expence of various buildings, of the ſame dimenſions, is totally vague and uncertain. Probably, upon an average of new buildings, it may amount to 2 or 3 per cent. or to half a year's rent to ſecure the whole property of the houſe, and all its contents. An houſe in London with three windows in a front of 24 feet, might be ſecured for 50 or 60l. An houſe of the next ſize, ſuppoſe 30 feet in front, might be ſecured for 70 or 80l. The next ſize, ſuppoſe four windows in a front of 36 feet, might be ſecured perhaps for 100l. The ſaving upon the inſurance, and of the tax upon inſurances, would be more than ſufficient to pay the intereſt of the additional expence of ſecuring the houſe from fire. The comparative expence is always proportionably leſs, according to the greater value of any houſe, with its furniture, and its contents. There are many ſhops in London, and many warehouſes of merchants, which contain perhaps ten, or twenty, or thirty thouſand pounds of valuable goods and merchandize, within a very ſmall compaſs. The expence per cent. in ſuch caſes, is reduced to a very trifling conſideration. And after all, who ſhall give an adequate eſtimate of the value of life itſelf, added to ſecurity without riſque, and ſleep without fear?

There are other ſubordinate conveniences attendant upon the uſe of the fire-plates. They contribute to preſerve an houſe in cleanlineſs; they prevent the falling of duſt from floor to floor, by the conſtant ſhaking, to which every houſe is liable, by the motion to and fro of its inhabitants; they deaden the communication of ſound between ſeparate floors; they likewiſe intercept the free paſſage of vermin, which are not only noxious and diſguſtful in themſelves, but in common houſes, they encreaſe the danger of fire, by harbouring in plaiſter-work, and gnawing holes in ſecret places, which may contribute to ventilate and cheriſh the lurking commencements of fire. Theſe are very inferior conſiderations, in compariſon with the primary uſe of the fire-plates, for the preſervation of life. It is ſufficient juſt to make mention of them.

It may be proper to mention two objections, which in the beginning of the invention were made to the fire-plates, together with the anſwers to them. The firſt is, that they may be liable to ruſt: the ſecond, that they may injure the timbers of the houſe, by too great an excluſion of air. As to the firſt objection, of ruſt, the anſwer is, that the plates are painted. Paint will preſerve iron from ruſt for ſome years, even when expoſed out of doors. As long as a coat of paint continues ſound and unbroken, it is an abſolute defence againſt ruſt, or any other corroſion. What cauſe can poſſibly occur to break or diſturb a coat of paint, lying at reſt under flooring-boards an inch thick? It is the continual viciſſitude of the elements of ſun, wind, and rain that breaks the body of paint when expoſed out of doors; but ſurely there can be no reaſon aſſigned for the ſuppoſition, that a coat of paint within doors, and under cover from wear and tear, ſhould be liable to decay. There is as much difference between iron painted or unpainted to turn ruſt, as there is between an houſe roofed or unroofed to turn rain. Beſides, ſuppoſing the boards to ſhrink, ſo as to admit moiſture in waſhing the floors, by the ſame rule they will admit duſt in ſweeping floors, and conſequently the interſtices will ſoon be filled up. As the fire-plates lie cloſe under the flooring-boards, the depth of the interſtices between the boards can be but the thickneſs of a flooring-board; viz. about one inch. This depth, in common courſe, will ſoon be filled. When theſe interſtices are once filled, the fire-plates will remain for ever inacceſſible to any damp or moiſture whatſoever. In ſhort, the coat of paint originally laid upon the plates, added to the ſafety of their ſituation from all external injury, cannot fail to be a ſufficient ſecurity againſt ruſt.

But if any one ſhould be ſo ſcrupulous as ſtill to be unſatisfied with the foregoing arguments, it is to be obſerved, that the principle and ſpecification of the invention for ſecuring a houſe from fire, by the fire-plates, is not confined to plates of Iron, but extends generally to the application of plates of any metal to the ſeveral parts of buildings, ſo as to prevent the acceſs of fire and the current of air. Accordingly fire-plates are now made of copper, rolled to a proper thinneſs, as well as of iron plates painted. The uſe of copper fire-plates will occaſion ſome additional expence, but not very great; certainly not more than one penny per foot ſquare additional; in recompence for which, copper fire-plates will always retain a great proportion of their original price in the intrinſic value of the copper. The moſt ſcrupulous perſons may therefore uſe the copper fire-plates, if they think them indiſpenſible for their quiet and ſatisfaction. And thus the objection of ruſt is compleatly and finally anſwered.

If it be an object of importance, which none can doubt, to preſerve houſes from fire, we ſhould be diſpoſed not only to conſider objections with attention, but to uſe our beſt endeavours to accommodate and to obviate them. We may err by over-ſcrupulouſneſs, as well as by inattention. Let it be remembered, that the fundamental principle is, that the fire-plates are incombuſtible, and that any accidental aperture or ſmall crevice in them will not yield or widen by the action of fire. If indeed they were liable to periſh in fire, the ſecurity expected from them might be attended with ſome diſtruſt in timorous minds.

However, the utmoſt ſcruples that can be ſuggeſted upon this article of ruſt will be removed by the uſe of copper fire plates; and, with this alternative in hand, all unreaſonable objections will be repreſſed, and the perſons concerned will form a more unembarraſſed judgment upon the caſe, than while they feel themſelves urged by a compulſive choice of terrors and ſcrupulous doubts on ſo intereſting a point as ſecurity from fire. Henceforward, there will not be any ground for diſputation or contention; fire-plates, either of copper or painted iron, may be uſed promiſcuouſly, according to the opinion and option of the parties who ſhall make uſe of this invention for the preſervation of their lives and property.

The peculiar object to which the copper fire-plates are adapted, is for the naval ſervice, for the protection of ſhips againſt fire. As there are no plaiſter ceilings in ſhips, the fire-plates muſt at leaſt be expoſed on one ſide to the daſhing and ſpray of the ſea. And beſides, from the conſtant working of ſhips in rough weather, the ſeams open, and the ſalt water would pour in upon the plates from all ſides. In theſe circumſtances, iron fire-plates, although painted, could not be expected to ſtand proof againſt the conſtant ſoaking and corroſion of ſalt water. For theſe reaſons, copper fire-plates have been invented for ſecurity againſt fire at ſea.

As to the ſecond objection, of injuring the timbers by impeding the acceſs of air, it is by no means the caſe, for the fire-plates are not air-tight; nor can they by any means be laid ſo tight as a common boarded floor, which is well laid. In the courſe of the experiments, the fire-plates are found, when there is no other obſtruction, to tranſmit ſmoke very plentifully, which is a viſible proof that they are not air-tight. The miſtake lies in ſuppoſing that the total excluſion of air is neceſſary to prevent fire from getting an aſcendant; whereas, the real truth is, that no fire could ſubſiſt under a common floor, if the joints of the floor would not widen by fire, and thereby not only afford ventilation, but fuel, from the timbers and flooring boards themſelves taking fire.

The objection, of injuring the timbers for want of air, was originally made to the miſtaken ſuppoſition of applying the plates to both ſides of the joiſts, viz. underneath, as well as above: but, as the fire-plates are only applied under the floors, it makes preciſely no difference from the common method of building; and, upon this conſideration, the objection is withdrawn by the builders who firſt ſuggeſted it. Every builder makes it his object to lay floors as tight as poſſible, and much cloſer than the plates can be laid. The counter-ceiling, which, in all good buildings, is put under the floor, contributes likewiſe to the tightneſs. Add to this, that every ceiling is made as tight as poſſible; and, in fine houſes, where the ceilings are painted, are impervious to air. Yet the objection of dry-rot was never ſtarted againſt tight floors or painted ceilings. If ſuch ſcruples had any real foundation, they would have prevailed over matters of mere ſuperfluity and ornament.

With reſpect to the accident, which ſometimes happens to the timbers of an houſe, and which is commonly called by the term of the dry-rot, and which we now impute to the want of the circulation of air, we do not know the real cauſe of it. Nothing is more common, than to find this dry-rot, as it is called, in wainſcoats, which certainly cannot be from want of air. The moſt probable cauſe of dry-rot, or rather, what

what ſhould be called wet rot, is from damp walls, or other adventitious moiſture, ſteaming upon the timbers of the houſe, as upon ground-floors, where there may be ſome ſpring or damp ſoil underneath. Upon the whole of this queſtion of the dry-rot, it remains preciſely as it was before the invention of the fire-plates. It is not an evil newly accrued ſince that invention, and therefore is not imputable to it. It will probably happen in ſuch caſes, and from ſuch cauſes as would have produced it unconnectedly with the fire-plates, and not in any other. It is entirely independent of them.

It may remain uncertain, whether the want of a circulation of air ſimply, without adventitious moiſture, would occaſion the dry-rot. It is moſt probable that it would not, becauſe, if that ſingle cauſe would effect it, unconnected with any other, it might be expected that ſcarcely any houſe would be free from it, as it is the great object of all workmen to make floors and ceilings as tight as they can. Neverthelеſs, though the ſimple excluſion of air may not give the dry-rot, yet it is ſtill poſſible that the contrary principle, viz. ventilation of air may afford a remedy, by exhaling and carrying off any adventitious moiſture which might corrupt and deſtroy the timbers. In this view of the queſtion, the fire-plates may be uſed even as a preventive againſt the dry-rot, inaſmuch as it is ſuppoſed to proceed from the want of air. Two or three courſes of the brick-work in the external walls, for a foot or two in width may be left out, juſt under the level of each floor, and an iron grating may be inſerted to give a free ventilation of air to the timbers of any new building for the firſt four or five years. After that period, the grating may be removed, and the brick-work filled up. To prove the certainty of this mode againſt fire, one of the apartments at the experiment-houſe upon Wimbledon Common was provided with grating in two oppoſite parts of the building ſo as to give a thorough ventilation and circulation of air to the timbers; and, in that apartment, which was ſecured only by the ſingle application of the fire-plates, many hundreds of experiments were tried with perfect ſafety. The object for which that conſtruction was adopted, was preciſely to ſhew, that the uſe of the fire-plates, ſo far from being liable to the objection of dry-rot, might be converted into a ſecurity againſt it.

There is one general remark which deſerves attention, as a fundamental principle in uſing the fire-plates as a ſecurity againſt fire; which is, that, if they are uſed, they cannot be defectively applied. In this point of view, they have the advantage over every other part of building. Brick-work, or plaiſter-work, or carpenter's, or tyler's work, is to be depended upon, more or leſs, according to the goodneſs of the materials, or the fidelity and vigilance of the workmen. But a fire-plate is one ſimple material, in which there is no difference of better or worſe of the kind. There is no poſſibility for any workman to exerciſe a fraud, by the ſubſtitution of any inferior kind; for there is no ſuch inferior kind. And in regard to the workmanſhip, that likewiſe cannot be defectively executed. The proper mode of laying the fire-plates is undoubtedly by nailing them upon the upper ſide of the joiſts, before the laying of the floors. But, if the groſſeſt poſſible negligence be ſuppoſed, even that a workman ſhould neglect to nail them previouſly to the joiſts, yet the flooring boards cannot be attached to the timbers of the houſe, without fixing and ſecuring the fire-plates in their proper poſition of giving ſecurity againſt fire. In ſhort, no houſe in which the fire-plates are applied, can be made habitable, without being made ſecure againſt fire.

As to the application of this invention to houſes that are already built, it may be applied by taking up the flooring boards, and relaying them with fire-plates underneath. If the trouble and expence of relaying floors be objected to, fire-plates may be laid upon any flooring boards without diſturbing them, and, after that, a thin ſheathing of deal may be laid upon them. This is the moſt commodious manner, for the leaſt expence, of applying this invention to houſes already built eſpecially in bed chambers, and nurſeries, and garrets.

garrets. If the new ſheathing be laid on in a neat and workman-like manner, it will ſerve to give a new face to an old floor, at the ſame time that it gives ſecurity to the whole houſe.

Beſides the application of the fire-plates, for the ſecurity of common dwelling houſes againſt fire, there is a caſe of a peculiar kind, and greatly intereſting to the public, in which the fire-plates might be applied very beneficially, which is in a playhouſe, to ſecure the ſpectators, not only againſt the real danger of fire, but likewiſe againſt the tumult and terror of alarms, which have upon ſuch occaſions produced very fatal conſequences. Fire in any playhouſe can only take riſe in ſome of thoſe parts which are near to, or connected with the ſtage. Thoſe parts of the houſe which are allotted to the ſpectators are not liable to take fire originally and ſuddenly. The danger is from the ſcenery and machinery appertaining to the repreſentation. In any ſuch caſes of danger or alarm, one pair of ſliding ſcenes, or a curtain of fire-plates, conſtructed in ſuch manner as to drop down in partitions, might be adapted, with proper mechanics, ſo as to interpoſe an incombuſtible ſcreen for the protection of the ſpectators, and to give time for a deliberate and ſafe retreat, without panic or conſternation. The principle of interpoſing an incombuſtible ſcreen, to prevent the lateral communication and effect of fire, is totally diſſimilar to the horizontal application of fire-plates under the floors of dwelling houſes; but, in the courſe of making experiments, it has incidentally occurred. An apartment in the experiment-houſe at Wimbledon, adjoining to the magazine of combuſtibles, with an open door-way between them, was ſecured from the flames and fire of the magazine by a ſcreen of fire-plates, as often as the experiment was repeated. The practicability of adapting this idea to a playhouſe is a matter of very general intereſt, and cannot be thought undeſerving of attention.

It has been one of the moſt intereſting objects of attention to the legiſlature, from the time of the fire of London, to prevent the repetition of ſo univerſal, and ſo horrid a calamity. Many acts of parliament have been paſſed upon this ſubject. The reigning principle in all theſe acts has been, to ſecure the metropolis from extenſive devaſtations, by the communication of fire from houſe to houſe. The capital object in them, has been to introduce party walls between houſe and houſe. This object has been followed up with very ſtrict and ſevere laws, and with the impoſition of great expence upon the owners of houſes in the metropolis, and within its environs, which would be needleſs for any houſe ſecured by fire-plates.

Many regulations have likewiſe been made for the eſtabliſhment of fire-engines, and of fire-men, for the extinguiſhing of fires; and many ſubordinate clauſes have been introduced reſpecting chimnies, and hearths, and wooden partitions, and other details in building, which might render each particular houſe leſs liable to fire. But ſtill no reigning principle has ever been adopted by parliament, to ſtrike at the root of the evil, by eſtabliſhing general ſecurity, upon the certain baſis of individual and perſonal ſafety. Great public exertions have been made and enforced to prevent any individual from ſetting his neighbour's houſe on fire; but all the feeble efforts which have even been attempted, to give individual ſecurity in each private family, have been planned in deſpondence, and executed with inefficacy, from the want of ſome known principle to give rational hope of ſucceſs.

The queſtion is now, whether that rational principle be here offered to the public. The cauſe is theirs, and the final judgment muſt remain with them.

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